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CENTRAL INTELLIGENCE ACTOR

REPORT NO.



INFORMATION REPORT

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COUNTRY Germany (Russian Zone) DATE DISTR.

25 Nov. 1949

SUBJECT

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25X1C

Caliber of Russian Technical Personnel Assigned to Zeiss

NO. OF PAGES

Plant in Jena PLACE ACQUIRED

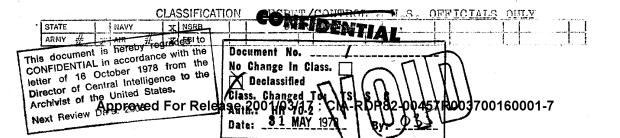
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- Since these persons had not received their training before the 25X1X1. Bolshevist revolution, their technical and scientific knowledge was very inferior to that of the German specialists. Score of the Soviets, it is true, were far above the average, but these were usually the older ones, for instance Genmaior NIKOLAYEV and Lt Col SHORSHIN.
 - The Americans and the Germans both have developed sights which are a satisfactory solution to the problem of aiming from flying aircraft (utilization of the principle of the so-called lagging gyroscope, patented in Germany by Dr. KORTUH). In technical circles, this problem is known as "control process in general" (Steuerungsvorgang allgemein). By controlling the movements of the flying aircraft through a steering gear of specific properties, one is able to either accurately nold the target, following all its movements, or to apply a damping device, which compensates these movements, a process which is naturally connected with a certain lag. The solution found in Germany by Dr. KORTUM, was the mathematical establishment of a differential equation, which represented this problem and which, for the damping factors occurring in the differential equation, brings about a ratio favorable for aiming from aircraft and the ground. This control system was used in all the bomb sights and also in the antiaircraft gun sights.
 - 3. These devices were entirely new to the Soviets and they had the greatest interest in learning them through cooperation with the German experts. It was learned that only one Soviet scientist had realized the theoretical basis of this control system. This knowledge has, however, not spread among the Soviet specialists, a fact which sheds significant light on the conditions prevailing in the Soviet Union. It must be stressed that although the Soviet specialists were willing enough to reach, within the shortest possible time, as they were ordered to do, the level of the German technical knowledge, they did not succeed while they were in the Zeiss Plant. It is Amprobable

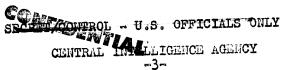


that they should have rescued their aid by now, for the relationship between the Soviet and the Jerman specialists was that of a student to his master.

- This can be illustrated by the following examples:
 - (1) The Soviet specialists could not understand how a cesi ner of the Zeiss rira (Nerr JUNGE) who had not had formal technical training, could make a rough draft of the assembly of complicated data computers with hundreds of details only from his creative imagination, then proceed to construct the set without making any calculations of tolerances and the required degree of precision. They demanded that the most minute parts of all the projected set be extensively examined, in special theoretical studies, as to their permissible tolerances. This had to be done before they would live permission to go ahead with the construction work.
 - (2) This procedure naturally led to a considerable delay in the solution of the problems. The Poviete completely overlooked the fact that there is no reason for the kinematic calculation of the gears due to the minimum forces to be transmitted in precision mechanics, provided the designer has sufficient experience in this field. They asked all the designers to report on their working methods, source actines interpreter. At the end of these reports the Soviets were elways uncatisfied, asserting that the Graans had withheld the most important information from them which, however, was nct the case. This distrust may be explained by the fect that the Soviet envincers, particularly younger ones who had not completed their studies at a technical academy or even a technical school, found it impossible to grasp the intuitive method of the Zeiss specialists.
 - b. A younger entineer who was told that a torque of a specific ma nitude particular to a liven shaft might be increased by its transmission to another shaft through an appropriate selection of the pear ratio in the con wheels used, replied that this well-known fact was in contradiction to the principle of the conservation of ener y.
- 3. A specialist of the Zeiss Firm (Pr. LANCE) established the equations for his si ht by calculation with complex numbers. To the Soviets this was en eni-ma, since the application of this calculus was utterly stran e to the , at least in this field, and they were not familiar with it. It was therefore nccessary to initiate them into this method of criculation.
- 4. a striking fact was revealed in the study of the extensive The entineer in there of these tests (Maval Entineer YUDIN) had never worked in the field of gyrospopes. "Ithough it can hardly be assumed that there are no proscope specialists available in the SU, it seems strange that en en ineer should have been detached to JENA and charted with work for which he lacket even a basic knowledge.
- hallistic cams play a decisive role in all sights and computers which are connected with ballistics. The manufacture of these ballistic cams has been sechanized to a large decree, special achinery being employed for their production in both dermany and the USA. Soviet at DUROV, the entheer in charge of this production, had previously seen these caus produced by hand only. For this reason he and his co-workers, with the help of Leiss specialists, has to familiarize themselves with the special Zeiss machinery and extensive reports on the preparations of work, the calculations and all the other pertinent problems had to be delivered to them. From the way in which these problems were approached by the Soviets it could be assured that

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ballistic came of high precision had not been manufactured mechanically in the SU.

6. Mrs. TALARNOVA, the Soviet opecialist in charge of optical calculations, in her talks with her German counterparts at the Zeiss Flant reveded that in the field of high-quality optical sights also the Soviets were far behind the Germans for instance, various optical systems occurring in the project, systems which the Seviets obviously did not know how to handle, had to be entirely calculated by the ZEISS specialists.

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Comment:

- 9. German Zeise specialists have reportedly been deported to MARONTOVIM and probably work in a ROSCON-TUSHINO plant. By securing the cooperation of Lr. KONTUN and his staff of cesi mers the Soviets have aimed valuable help in a field where they had been relatively neakest, i.e. in the production of bomb sights, approaching yun sights, periscopes and devices for the remote control of arms.
- b. The report indicates that the german specialists are probably faced with the grantest difficulties in the Soviet Union.

